IAI ENGINEERING DIVISION
Commercial Aircraft Group
ISRAEL AIRCRAFT INDUSTRIES LTD

HarnesSys
INSTALLATION
User Manual

May 2008

Issue AF

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Publication Number 4422/HAR_SUM/00104 Issue AF

Table of Contents

Introduction 5
Architecture 7
Architecture of *HarnesSys* Classic application 8
Architecture of *HarnesSys* Next-Look client application 9
Architecture of *HarnesSys* Next-Look Web client application 10
HarnesSys Environment 11
Directory Trees 11
User Environment Setup (on Unix platforms) 14
Motif Environment Setup (on Unix platforms) 14
Resource Files 14
HarnesSys Fonts 14
HarnesSys Installation Requirements 15
HarnesSys Classic 15
Hardware 15
Prerequisite Software 15
Unix User 15
HarnesSys Installation Procedure 16
HarnesSys Upgrade Procedure 18
HarnesSys Patch Installation Procedure 18
HarnesSys Next-Look 19
Hardware 19
Prerequisite Software 19
Unix User 19
HarnesSys Installation Procedure 19
HarnesSys Upgrade Procedure 20
Service Scripts 21
Plotter Setup 21
Add Project 21
Delete Project 22
Restore SDP Tables 22
Enable New Sessions in *HarnesSys* 22
Disable New Sessions of *HarnesSys* 22
Color Setup 23
Convert symbol library 23
Build plotter db 23
HarnesSys User Documentation: 24

Introduction

This ***HarnesSys*** **Installation Manual** details the installation of the ***HarnesSys*** application. The ***HarnesSys*** environment, **Oracle** environment and installation requirements are described. Operating instructions for first time installation, upgrade installation, patch installation and Oracle installation are also provided.

This manual is intended for the ***HarnesSys*** administrator.

Below is a brief description of the sections which comprise this User Guide.

Architecture
This section describes the architecture of ***HarnesSys*** working as a standalone application (***HarnesSys Classic***), or as a ***HarnesSys*** multi-tier (client / server) application (***HarnesSys Next-Look***).

HarnesSys **Environment**

This section describes the directory trees and definitions as well as the User and Motiff setups.

Installation Requirements and Procedures

This section describes the hardware, operating system and software requirements for the installation of ***HarnesSys*** **Classic** and **Next-Look** environments.

Service Scripts

This section describes the service scripts provided with ***HarnesSys***.

Note: ***HarnesSys*** **Installation Manual** is one of a set of user guides that make up volume **0** of the ***HarnesSys*** user documentation.

Architecture

HarnesSys can be operated in several different major modes:

1. ***HarnesSys Classic (*stand-alone)** application- This is the traditional way of running ***HarnesSys***, as an interactive application.

2. ***HarnesSys Next-Look (2000)*** client application - In this mode, the user runs selected installed modules (the client programs) that provide ***HarnesSys*** services against a remote ***HarnesSys*** server program.

3. ***HarnesSys Next-Look*** Web client application - In this mode, the user operates selected modules that provide ***HarnesSys*** services via a web browser (such as Internet Explorer or Netscape Communicator) against a remote ***HarnesSys*** server program.

Architecture of *HarnesSys* Classic application

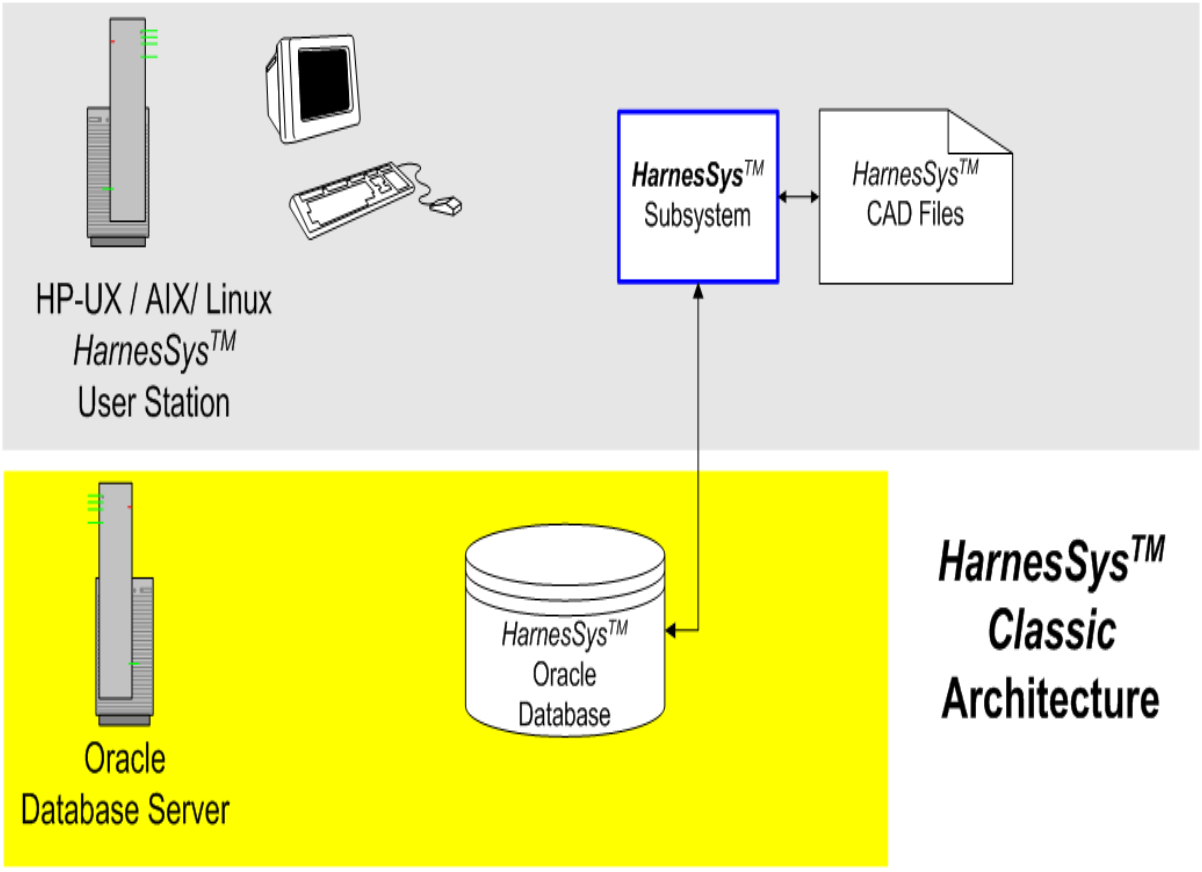
The major components of this architecture (See Figure 1) are:

1. The Oracle Database Server

1. The ***HarnesSys Classic*** software is currently running on Unix platforms.

HarnesSys is made of several interactive and batch modules. The interactive modules are built upon OSF/Motif and upon Oracle Forms.
HarnesSys repository includes an Oracle database and additional Unix files. ***HarnesSys*** software and repository files must be local on the user worksta- tion, or NFS-mounted. ***HarnesSys*** accesses the database via SQL*Net.

Figure 1. *HarnesSys Classic* Application Architecture



Architecture of *HarnesSys* Next-Look client application

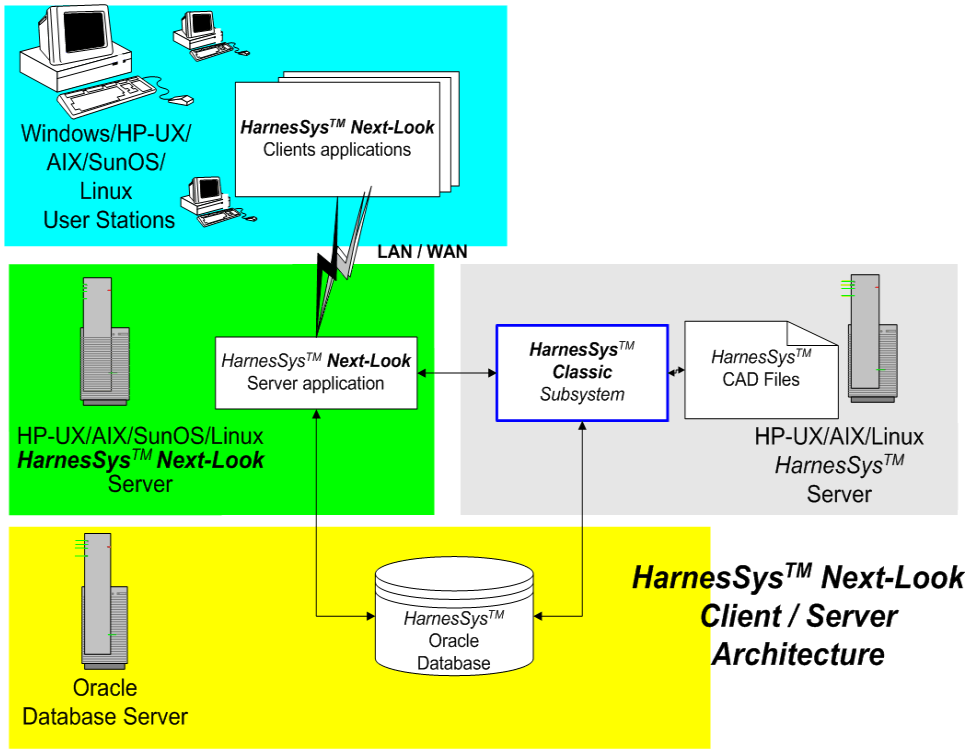
The major components of this architecture (See Figure 2) are:

1. The Oracle Database Server (as in ***Classic*** mode)
2. The ***HarnesSys Classic*** Server. It is a subset of the ***HarnesSys Classic*** software, invoked by the ***HarnesSys Next-Look*** Server. It consists of several batch programs providing ***HarnesSys*** services. It runs on Unix platforms.
3. The ***HarnesSys Next-Look*** Server. This is a Java daemon program running on a Unix platforms, that allows ***HarnesSys Next-Look*** clients to access to ***HarnesSys*** services.

The ***HarnesSys Next-Look*** Server communicates with the ***HarnesSys*** Server via Unix to Unix remote command shell and with the database via the Java Database Connectivity (JDBC) interface.

4. The ***HarnesSys Next-Look*** Clients. Clients are Java programs installed on a platform (Windows, Unix...) that provide ***HarnesSys*** services. An example of a client is the ***HarnesSys*** Viewer. Each client communicates with a ***HarnesSys Next-Look*** Server via the Java Remote Method Invocation (RMI) protocol.

Figure 2. *HarnesSys Next-Look* Client. / Server Application Architecture

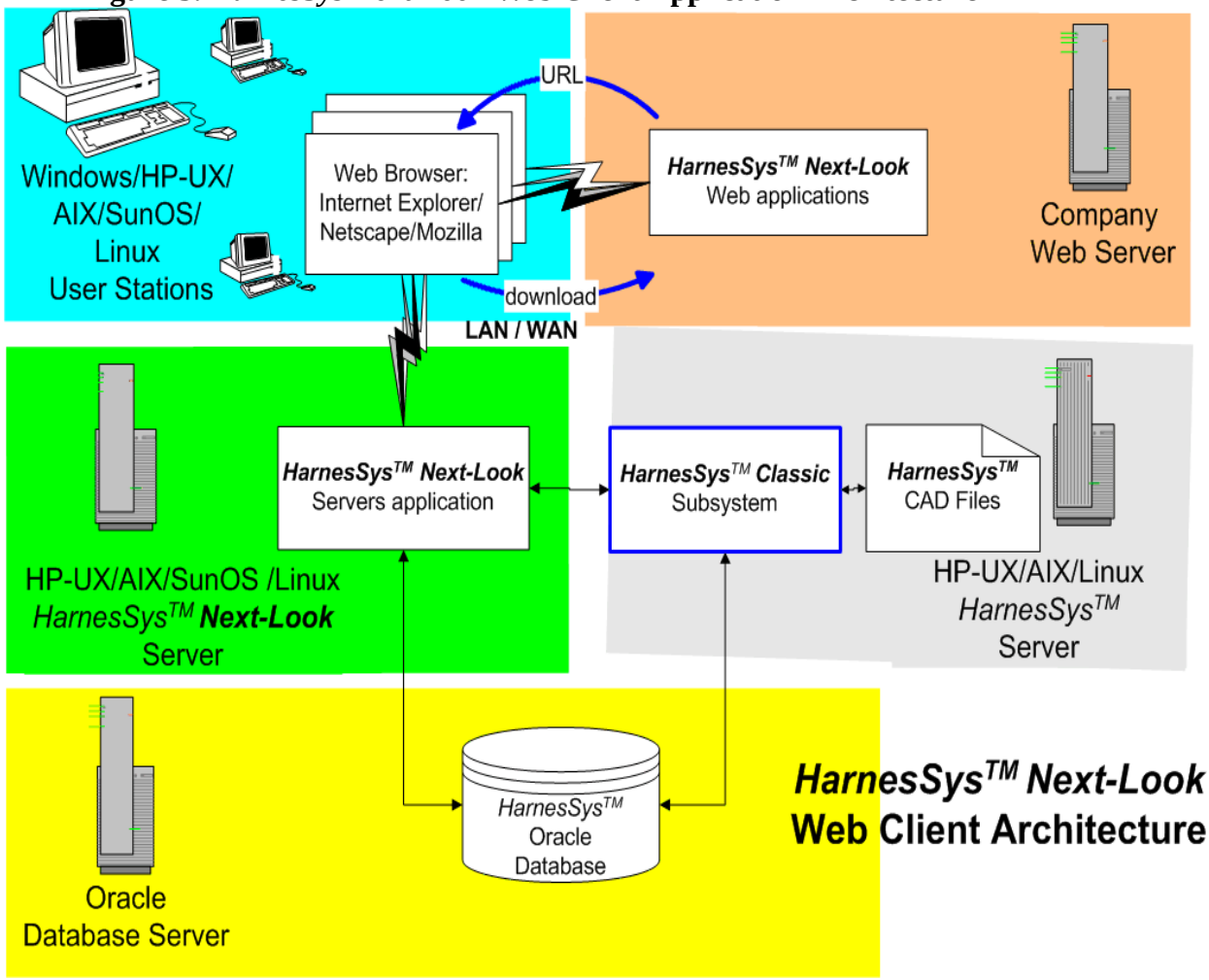


Architecture of *HarnesSys* Next-Look Web client application

The major components of this architecture (See Figure 3) are:

1. The Oracle Database Server (as in ***Classic*** mode)
2. The ***HarnesSys*** Server. (As in ***HarnesSys Next-Look*** client application mode).
3. The ***HarnesSys Next-Look*** Server. (As in ***HarnesSys Next-Look*** client application mode).
4. The Web Server is needed to provide your ***HarnesSys Next-Look*** **Web** Clients with access to ***HarnesSys*** software.
5. The ***HarnesSys Next-Look*** **Web** Clients. Web Clients are launched from any platform via web browser programs such as Microsoft Internet Explorer and Netscape/Mozilla Communicator. The web browser downloads the Java program to be run from the Web Server communicating with a http protocol. The web client communicates with a ***HarnesSys Next-Look*** Server via RMI activated with Java Plugin (On MS Windows if Java is not istalled it will be downloaded and self installed).

Figure 3. *HarnesSys Next-Look* Web Client Application Architecture

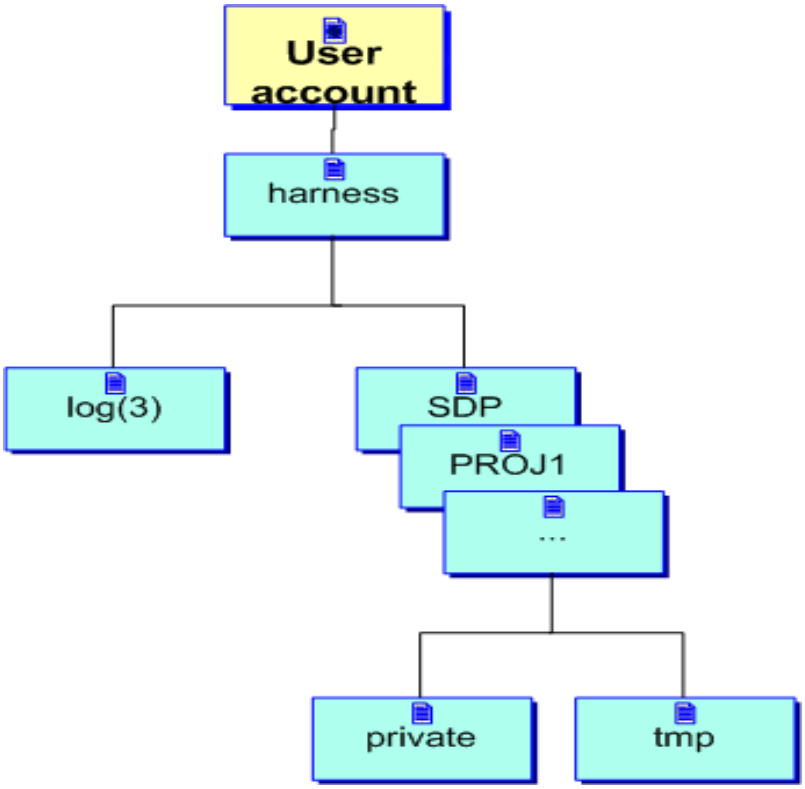


HarnesSys Environment

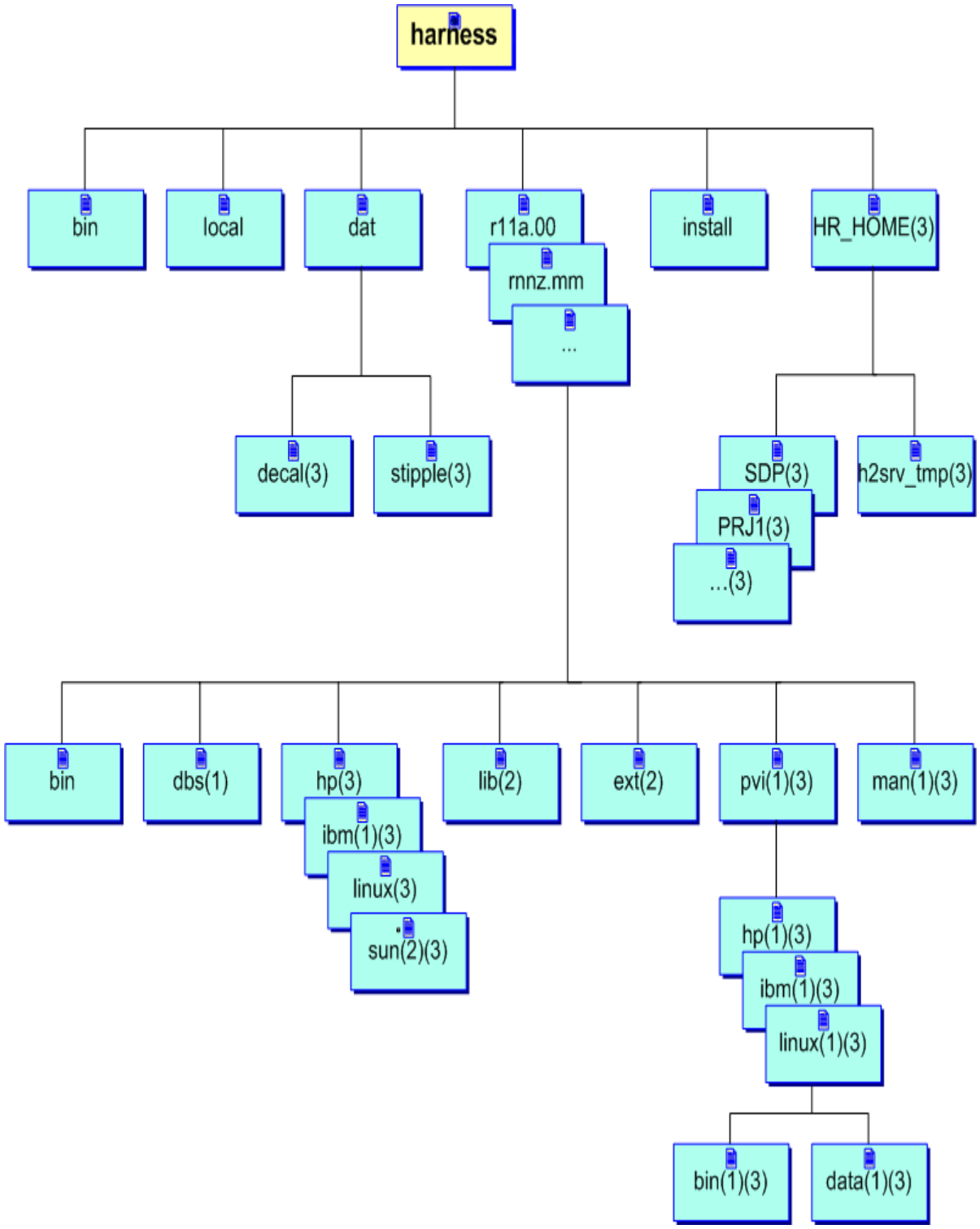
Directory Trees

The following figures depict the installation directory trees for the ***HarnesSys*** user, the ***HarnesSys Classic***, the ***Next-Look*** server, ***HarnesSys Next-Look*** client and the ***HarnesSys Next-Look*** web server installation (on Unix and Windows platforms).

Refer to the table in the following pages for the description of these directories.



The User Directory Tree



The HarnesSys Installation Directory Tree

(*) **(1)** ***HarnesSys Classic*** **only; (2)** ***HarnesSys Next-Look only;(3) Unix*** **only.**

Directory Definitions -

Directory Name	**Description**
harness directory	Root of directory tree, $HOME of ***harness*** user name.
install	***HarnesSys*** installation scripts.
bin	***HarnesSys*** command scripts.
local	Customer local environment and script services (plot, print, etc.).
dat	Common data files, including global symbol libraries. File names including <***_platform***> are machine specific.
decal(3)	Decals and frames library.
stipple(3)	Stipples library for pipes.
$HR_HOME(1)(3)	***HarnesSys*** repository for project files.
SDP(1)(3)	Demo project files (Software Demonstration Package).
PROJx(1)(3)	PROJx project files.
h2srv_tmp(1)(3)	Directory for data transfer between server and clients.
rnnz.mm	Version dependant release directory.
bin	Release command scripts.
dbs(1)	***HarnesSys*** database management scripts.
man(1)(3)	User manuals.
hp, ibm,linux,sun,win	O/S-dependent directory.
pvi(1)(3)	Interpreter services for plot (Precision Visual Incorporated)
lib(2)	Java jar files of ***HarnesSys Next-Look.***
ext(2)	Java extensions files for ***HarnesSys Next-Look.***
User Directory	***HarnesSys*** creates the following three directories for each ***HarnesSys*** user if they do not already exist:
log	User ***HarnesSys*** private directory: **$HOME/harness/log**
private	User ***HarnesSys*** private directory: **$HOME/harness/<*PRJ*>/private**.
tmp	User temporary directory: **$HOME/harness/<*PRJ*>/tmp**

User Environment Setup (on Unix platforms)

To invoke ***HarnesSys*** on **UNIX** from a user's path
1. Enter for csh users: **set path = (~harness/bin $path)**, then press **<CR>**.
2. Enter for sh users: **export PATH = ~harness/bin:$PATH**, then press **<CR>**.

If not using user's path, aliases can be used. Remember to create a separate alias for '**~harness/bin/harness**' (***HarnesSys Classic***) and for '**~harness/bin/harness2**'(***HarnesSys Next-Look***).

To invoke ***HarnesSys*** on **Windows** create a sortcut to
<***HarnesSys*** install>\bin\harness2.bat

Motif Environment Setup (on Unix platforms)

Resource Files

HarnesSys requires two application resource files**:**

- HARNESS - ***HarnesSys*** (Motif) application resource file in **/usr/lib/X11/app-defaults**.

- Tk2Motif - Oracle application resource file in "**<Oracle_Forms_HOME>/guicommon/tk2/admin**" . Each ***HarnesSys*** user can create his/her own resource files.

HarnesSys Services allow each user to create user specific resource files. These files are created in the user's home directory.

HarnesSys Fonts

HarnesSys uses various fonts. All fonts are addressed with an asterisk (*) in the dpi field. therefore, 100 dpi will be selected automatically by the system. Set your font path according to your screen resolution.
Usually, the following paths should be defined:

- 100 dpi appears in first position on HP 700 series and IBM RS6000 series.

- 75 dpi appears in alternative position on HP 700 series and IBM RS6000 series (If 100 dpi is not available 75 dpi will be selected).

To check the font path

Enter the command **/usr/bin/X11/xset -q**, then press **<CR>**.

HarnesSys Installation Requirements

HarnesSys Classic

Hardware

Hewlett-Packard UNIX workstations and servers, running **HP-UX** 11.11 (or higher) operating system

IBM UNIX workstations running **AIX** 5.3 operating system.

Intel x86 computers, running **Linux** operating system: Linux Kernel 2.6.9-22/ RedHat Enterprise Linux WS release 4
Minimum configuration is Pentium III, 400MHz, 256MBytes RAM, 16GBytes disk storage.
KDE login is necessary

Prerequisite Software

Oracle RDBMS version 8.1.7 or higher.
Oracle developer 6i.

Create two Tables spaces: HARNESS,TMP for Oracle ***HarnesSys*** users .
Oracle users in HARNESS table space and temp table space TMP:

HarnesSys Oracle user - **harnessdb**; password - harnessdb
HarnesSys Oracle user - **harness**; password - harness
HarnesSys Oracle user - **hrsdp**; password - hrsdp
HarnesSys Oracle user - **hranp**; password – hranp

Create oracle User Names for additional projects as needed.

All the ORACLE users have to be granted permissions connect, resource.

Unix User

The account for the installation is: **'harness'** (account shell **csh**)

HarnesSys Installation Procedure

1. Create user name **harness** with login shell **/bin/csh**
2. Login to **harness.**
3. Put the installation file in **harness** home directory.
4. Save the installation procedure in a log file.
   Use command: **script <log_file name>**, then press **<CR>** to enter script mode.
5. Uncompress and untar the file use the following command:
   zcat<HR_FILE> | tar xvf, then press **<CR>**.
6. cd ~/install
7. Launch the installation procedure **./hr.install**
8. Select **Full installation** (option 1).
9. Answer the questions. Refer to table 1 on next page.
10. Enter **exit**, to exit from the script.
11. Configure the file ~harness/local/hr_print_file ~harness/local/hr_plot_file according to the skeleton files supplied in ~harness/install/.
12. Add a path to ***harness*** command to each ***HarnesSys*** user path : ~harness/bin
13. Launch ***harness*** application.
14. Create projects and give user permissions.
15. Define on UNIX clients, the "PATH" (including **harness/bin** for each ***HarnesSys*** user. "**harness**" and the Oracle software should be mounted on specified workstations.
16. Add to User Account "**HARNESS**" and "**Tk2Motif**" resource files according to versions/patches of ***HarnesSys***, by Harness color_setup.

Table 1: Header hr_local_environment settings

Variable	Significance
ORACLE_HOME	Should point to the disk location of the Oracle Forms software.
ORACLE_HOME_imp	Should point to the disk location of the Oracle RDBMS software.
ORACLE_NODE	Should be the connection string for Oracle ***HarnesSys*** DB.
ORA_NLS33	Should point to Oracle NLS directory under ORACLE_HOME.
LD_LIBRARY_PATH	Shared library environment On Linux only: 'ORACLE_HOME/lib:/usr/X11R6/lib'.
HR_PLOT_MODE	Should be the local plotting mode default (One of HPGL2, CGM_DOD, CGM_ATA, CGM_CLEAR_TEXT)
PREPARE_BY	Should be TRUE if a Prepared By label Required.
HARNESS_DOCUMENT	Should point to ***HarnesSys*** legal drawings sizes definition file
SIZES	(Defaults are supplied).
DECAL_DIR	Should point to ***HarnesSys*** local decals directory (defaults are supplied).
HR_NETSCAPE	Should include local Web Browser activation command.

HarnesSys Upgrade Procedure

1. Backup harness account and ORACLE database
2. Put the installation file in harness home directory.
3. cd ~/install
4. Save the installation procedure in a log file.
5. Use command: **script <log_file name>**, then press **<CR>** to enter script mode.
6. Launch the installation procedure. /**hr.install**
7. Select **Upgrade installation** (option 2).
8. Answer the questions. Refer to table 1.
9. Enter **exit**, to exit from the script.

HarnesSys Patch Installation Procedure

1. Backup harness account and ORACLE database
2. Put the installation file in harness home directory.
3. cd ~/install
4. Save the installation procedure in a log file.
5. Use command: **script <log_file name>**, then press **<CR>** to enter script mode.
6. Launch the installation procedure **./hr.install**
7. Select **Patch installation** (option 3).
8. Answer the questions. Refer to table 1.
9. Enter **exit**, to exit from the script.

HarnesSys Next-Look

Hardware

Hewlett-Packard UNIX workstations and servers, running **HP-UX** 11.11 (or higher) operating system

IBM UNIX workstations running **AIX** 5.1 operating system.

Intel x86 computers, running **Linux** operating system: Linux Kernel 2.4.21-20/ RedHat Enterprise Linux WS release 3.
Minimum configuration is Pentium III, 400MHz, 256MBytes RAM, 16GBytes disk storage.
KDE login is necessary

Prerequisite Software

- ***HarnesSys*** Next-look is based on ***HarnesSys*** Classic. This installation is performed after the installation of ***HarnesSys*** Classic software.
- Java 2 Run Time Environment (JRE), including plugin for the web browsers, on each ***HarnesSys Next-Look*** client stations. (version 1.4.10).
- A Web Server is needed to provide your ***HarnesSys Next-Look*** Clients with web access to ***HarnesSys*** software.
- Check that server node has remote access (rexec, rsh (remsh on HP machine)).
- Add the server name to /etc/hosts.equiv or add it to every ***HarnesSys*** user ~/.rhosts file

Unix User

The account for the installation is: ‘harness’ (account shell csh)

HarnesSys Installation Procedure

1. Install ***HarnesSys*** Classic
2. The last stage in ***HarnesSys*** Classic installation is the ***HarnesSys*** New-Look installation or launch the procedure ~harness/install/h2_local_environmet.install
3. Answer the questions. Refer to table 2 below.
4. Create /add Plotters definition XML file. (*harness2 build_plot_db*)
5. Make sure that ***HarnesSys*** Next-Look daemon will be invoked in every boot time. (You can use option 6 in the installation procedure that will create an rc file for boot time to invoke the ***HarnesSys*** Next-Look daemon.
6. To launch ***HarnesSys*** Next-Look server,
- login to the server as a harness user
- each time you reboot, make sure to launch the command *harness2 server*

7. Launch *harness2* application.

Table 2 Header h2_local_environment settings

Variable	Significance
H2000_HOME	Full directory path for the ***HarnesSys Next-Look***
H2000_SERVER	Node name of the ***HarnesSys Next-Look*** server
H2000_SERVEL	Node name of the ***HarnesSys Next-Look*** server (local name if different from Network well known name)
H2000 SERVERS	List of node names where ***HarnesSys Next-Look*** server might run.
H2000_PORTS	List of port numbers used for the ***HarnesSys Next-Look*** client/servers RMI communication. Defaults to 0 per each ***Har- nesSys Next-Look*** server, if no firewall issues are involved.
H2_REG_PORT	Port number used for the server RMI registry. Defaults to 1099, if no firewall issues are involved.
HR_SERVER	Node name of the ***HarnesSys Classic*** server.
HR_SRV_VERSION	HR_VERSION of the ***HarnesSys Classic*** installation (if installed separate from ***HarnesSys Next-Look)***.
ORA_TARGET	Node name of the Oracle_server:1521:Oracle_SID.
JDK_HOME	Full directory path for the Java 2 Standard Development Kit (per Operating System HP_UX; Linux; AIX,SunOS)

HarnesSys Upgrade Procedure

HarnesSys **Next-Look client installation (Windows)**
HarnesSys Patch Installation Procedure:
This installation is optional.
1.To start the installation, double click the 'H2_<HR_VERSION>_setup.exe' file.
An installer wizard will guide you through the various steps of the installation.
(refer to table 2)
2. Create a shortcut to <***HarnesSys*** install>\bin\harness2.bat
3. Launch ***HarnesSys*** Next-Look.

Service Scripts

HarnesSys Classic / ***HarnesSys Next-Look*** provide a number of service utilities. The utilities are located in the **~harness/$<HR_VERSION>/bin** directory in **hr_<utility_name>** / **h2_<utility_name>** format.

To invoke the utilities enter **harness <utility_name>**, then press **<CR>**.

Several utilities can be invoked only by the ***HarnesSys*** administrator ("harness"), others may be invoked by ***HarnesSys*** users (see the Utilities User Manual, Vol. 0).

Plotter Setup

This procedure must be performed by the ***HarnesSys*** administrator.

plot_setup

Description: Sets **HR_PLOT_MODE** to one of the following:
CGM_DOD
CGM_ATA
CGM_CLEAR_
TEXT HPGL2
HPGL

If HPGL is selected, a link from "drvhp7.cfg" to "drvhp7 <HPGL_MACHINE_MODEL>" is created.

Usage: harness plot_setup
[HR_PLOT_MODE [HPGL_MODEL]]

Add Project

This procedure is performed by the ***HarnesSys*** administrator. The function of this utility is also available from ***HarnesSys*** Motif windows.

add_project

Description: Adds a new project definition to ***HarnesSys***, which includes creating the pointer to the new Oracle user for the project, tables and initial data for the new project and directories with public project files(see the Add a New Project utility in the Utilities User Manual, Vol. 0).

Usage: harness add_project
[ORACLE_USER [ORACLE_PASSWD [PROJECT
[PROJECT_MANAGER [PROD_DESC]]]]]

Delete Project

This procedure must be performed by the ***HarnesSys*** administrator.

del_project

Description: Deletes a project's definition form ***HarnesSys***, which includes deleting the pointer to the Oracle user for the project, tables and all the data for the project and directories with public project files.

Usage: harness del_project <PROJECT>

Restore SDP Tables

This procedure must be performed by the ***HarnesSys*** administrator.

restart_sdp

Description: restores SDP tables and project files to their original status.
Usage: harness restart_sdp

Enable New Sessions in *HarnesSys*

This procedure must be performed by the ***HarnesSys*** administrator.

start

Description: Enables users to invoke ***HarnesSys*** after the ***HarnesSys*** administrator disabled some or all of ***HarnesSys*** versions.
Usage: harness start

Disable New Sessions of *HarnesSys*

This procedure must be performed by the ***HarnesSys*** administrator.

stop

Description: Disables users from invoking ***HarnesSys*** for all specific versions of ***HarnesSys***.
Usage: harness stop

Color Setup

color_setup

Description: Changes user's color setup for the ***HarnesSys*** application (creating resource files '**HARNESS**' and '**Tk2Motif**' in users's home directory).

Usage: harness color_setup
[RainForest] || [Metro] || [CoralReef] || [White].

Convert symbol library

convert_symbol_library

Description: For ***HarnesSys Next-Look*** administrator - converts old ***HarnesSys*** symbol library to a Java jar file of XMLs.

Usage: harness2 convert_symbol_library.

Build plotter db

build_plot_db

Description: For ***HarnesSys Next-Look*** administrator - create /adds Plotters definition XML file.

Usage: harness2 build_plot_db.

HarnesSys User Documentation:

Volume 0 - Getting Started.

Volume 1 - Schematics.

Volume 2 - Layout Drawing.

Volume 3 - Wires.

Volume 4 - Parts.

Volume 5 - Integration.

Volume 6 - Management and Configuration Control.

Volume 7 - Manufacturing.

Volume 8 - Technical Publications.

Volume 9 - Retrofit.